

CLAIMS

1. A method of storing and administering storage unstable, therapeutic and nutritional agents for targeted delivery to predetermined locations in the gastro intestinal tract which includes the steps of encapsulating the storage
5 unstable, therapeutic and nutritional agents in an encapsulant formed by combining a food grade treated carbohydrate with a water soluble food grade protein.
2. A method as defined in claim 1 in which the carbohydrate material is treated
10 to make emulsions of the encapsulant material stable and to increase the number of sugar reducing groups in the carbohydrate.
3. A method as defined in claim 1 in which the carbohydrate is selected from those containing reducing sugar groups, oligosaccharides, raw, modified,
15 resistant, acetylated, proprionylated and butylated starches.
4. A method as defined in claim 1 or 3 in which the protein is selected from milk proteins including casein and whey proteins.
- 20 5. An encapsulation material for use with storage unstable, therapeutic and nutritional agents which release the therapeutic and nutritional agents in predetermined locations in the gastro intestinal tract in which the microencapsulation material is formed by combining a food grade treated carbohydrate with a water soluble food grade protein.
- 25 6. An encapsulation material as claimed in claim 5 in which the carbohydrate material is treated to make emulsions of the encapsulant material stable and to increase the number of sugar reducing groups in the carbohydrate.
- 30 7. An encapsulation material as claimed in claim 5 in which the carbohydrate is selected from those containing reducing sugar groups, oligosaccharides, raw, modified, resistant, acetylated, proprionylated and butylated starches.

8. An encapsulation material as claimed in claim 5 or 7 in which the protein is selected from milk proteins including casein and whey proteins.
- 5 9. An orally administrable nutritional or therapeutic product for delivery of a nutritional or therapeutic agent to the gastrointestinal tract in which the agent includes an oil or an oil soluble or dispersible component which is encapsulated in a material as claimed in claim 5.
- 10 10. A method of preparing a nutritional or therapeutic product as defined in claim 9 which includes the steps
- a) selecting a nutritional or therapeutic oil, oil soluble or oil dispersible nutritional or therapeutic agent
 - b) dispersing a water soluble film forming protein and a treated carbohydrate in the aqueous phase
 - 15 c) mixing component (a) with component (b) and homogenizing the mixture to obtain an emulsion
 - d) optionally drying the emulsion to obtain a powdered formulation in which the nutritional or therapeutic oil or agent is surrounded by the component (b).
- 20 11. A method as defined in claim 10 in which the water soluble film forming protein is selected from milk proteins including casein and whey proteins.
- 25 12. A method as defined in claim 10 in which the carbohydrate material is treated to make emulsions of the encapsulant material stable and to increase the number of sugar reducing groups in the carbohydrate.
- 30 13. A method as defined in claim 10 in which the carbohydrate material is selected from those containing reducing sugar groups, oligosaccharides, raw, modified, resistant, acetylated, propionylated and butylated starches.
14. A method as defined in claim 13 in which the water soluble film forming protein is selected from milk proteins including casein and whey proteins.